DCLU News

Parapet Evaluation and Repair

Earthquake damage to unreinforced buildings a particular concern

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In the aftermath of the Nisqually Earthquake, the City of Seattle strongly recommends that owners of unreinforced masonry buildings who have not yet done so have the parapets of those buildings thoroughly inspected for damage and deterioration before this winter. A cursory inspection, particularly from street level, can miss significant damage to the parapet and similar appendages, such as cornices, spires and towers. "It is highly possible that these types of parapets were weakened by the February earthquake, and the freezing and thawing of our winter precipitation could cause them to fall," said Craig Ladiser, DCLU deputy Director for Operations. "These building features should be repaired or braced as necessary as soon as possible to mitigate the potential falling hazards."

The Seattle Building Code requires repairs for this type of damage and deterioration. A licensed engineer or masonry contractor can perform the inspection and a licensed engineer must develop the plans for any needed repairs. It is important to note that Seattle building owners have already had many of these buildings inspected, and repaired as needed.

The cost of repairing parapets varies, commonly in the range of $10,000 to $50,000. A building permit from DCLU is required and DCLU staff is ready to discuss and review earthquake repair plans. In some cases approval by an historic preservation board is also required. For most projects plans can be approved within two weeks.

To apply for a parapet repair permit, please contact the DCLU Applicant Service Center, located on the 20th floor of Key Tower at 700 5th Avenue, (206) 684-8850.

Background

Unreinforced brick masonry (URM) bearing wall buildings typically have multi-thickness (or multi-wythe) exterior walls that support the floors and roof. This was a common type of construction in older commercial buildings. These masonry bearing walls usually differ in appearance from masonry veneer by the presence of arched windows and header bricks. Header bricks are courses of bricks with the ends showing, used to tie the wall together. The floor and roof system can be wood, steel, or concrete.

A significant weakness in older URM buildings is the parapet, that part of the wall that is above the roofline. It gets whipped back and forth in the earthquake and can be significantly damaged without falling. Many buildings did not shake quite hard enough or long enough during the Nisqually Earthquake for a complete falling failure to happen, but may still pose a danger to people and property below. A severe winter with freeze/thaw cycles may cause further damage to the parapet, and cause it to fail completely.

To mitigate the major falling hazard and potential life-safety threat of URM parapets, lateral support with steel braces are typically installed. It is recommended that all URM parapets that extend above the highest anchorage level to a height that is more than 1.5 times the thickness of the parapet be braced.

The Department of Planning and Development (DPD) is located in Seattle Municipal Tower
(formerly Key Tower) at
700 Fifth Avenue in downtown Seattle (details).

Mailing Address: DPD, 700 5th Ave Suite 2000, P.O. Box 34019, Seattle, WA 98124-4019

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